DOCUMENT RESUME

ED 138 193 HE 008 858

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TITLE The Relationship of Parental Reinforcement, Parental Modeling, Need Achievement, and Need Affiliation to the Type of Graduate Program Enrollment of Females.
PUB DATE Apr 77
NOTE 20p.; Paper presented at the annual meeting of the American Educational Research Association (New York City, April, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Career Choice; Comparative Analysis; *Family Influence; *Females; *Graduate Students; Higher Education; Measurement Instruments; *Parental Background; *Parent Attitudes; Statistical Studies; Student Interests; Surveys; Units of Study; *Womens Education
IDENTIFIERS Jackson Personality Research Form

ABSTRACT

The purpose of this study was to determine if female graduate students in traditional programs could be distinguished from female graduate students in nontraditional programs on the basis of parental reinforcement, parental modeling, need achievement, and need affiliation. Paternal and maternal reinforcement scales, which assessed parental support for academic and career goals, and a demographic form that elicited information on parental education and occupation were devised for the study. These measures and the achievement and affiliation scales of Jackson's Personality Research Form were administered to the two groups of female students. Results indicated that there was a significant difference between the groups. Students were differentiated primarily according to several parental variables. (Author/MSE)

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THE RELATIONSHIP OF PARENTAL REINFORCEMENT, PARENTAL MODELING, NEED ACHIEVEMENT, AND NEED AFFILIATION TO THE TYPE OF GRADUATE PROGRAM ENROLLMENT OF FEMALES

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American Educational Research Association
Session Number 21.13, Division E

April, 1977

HE008295-P

Although the enrollment of women in graduate schools has increased substantially since 1970, researchers have not been able to isolate the factors which contribute to their selection of traditional or nontraditional programs of study. Traditional programs would prepare students for careers in consonance with feminine sex-role standards, whereas nontraditional programs would prepare students for careers in line with occupational goals generally held by men. Achievement-related behavior in males has been found to be rooted in parental achievement-training patterns (Atkinson, 1958; McClelland, Atkinson, Clark, & Lowell, 1953; Rosen & D'Andrade, 1959; Winterbottom, 1958). This finding would imply that academic achievement and selection of graduate program may be related to developmental factors which involve parental reinforcement and modeling.

With regard to these developmental variables, Bandura and his associates found that various model characteristics affect the frequency of imitative behavior. Results indicated that individuals tended to reproduce the behavior of a rewarding model (Bandura, 1969; Bandura, Ross, & Ross, 1971; Bandura & Walters, 1963). Consequently, it would be likely that female students in nontraditional fields received greater praise and encouragement for intellectual achievement from their fathers and patterned their programs of study after masculine achievement interests. Further, it would be likely that female students in traditional fields have received greater reinforcement for intellectual achievement from their mothers and selected programs of study that represented extensions of the feminine role.

Additional research on imitative behavior has shown, particularly with regard to cross-sex modeling among females, that individuals often selected models high in intellectual and social status (Bandura, Ross, & Ross, 1971) or models similar to the observer (Bandura, 1971; Rosekrans, 1967). Consequently, it would be likely that fathers of students in nontraditional fields have attained a higher educational and occupational level than fathers of students in traditional fields. On the other hand, perceived similarity

between mother and daughter may have accounted for the selection of traditional graduate programs, which represent an extension of the feminine role.

It would seem to be unlikely that the mother's educational or occupational level accounted for selection of graduate program, for neither of these factors would be in consonance with the development of feminine sex-role values. Attempts to relate the mother's employment patterns to the achievement orientation of women yielded results that were inconclusive (Baruch, 1972; Lipmen-Blumen, 1972; Tangri, 1972). Conflicting findings may be attributed to the small number of employed women in the samples and to the failure to examine the level and extent of maternal employment. Investigations of these latter variables may clarify the influence of the mother's employment patterns on the daughter's choice of graduate program.

Selection of traditional or nontraditional programs may be related, not only to parental characteristics, but also to the achievement and affiliative needs of female graduate students. Although findings have not always been clear-cut (Alper, 1973; Robbins & Robbins, 1973; Romer, 1975; Zuckerman & Wheeler, 1975), research suggested that fear of success responses to projective measures were related to concerns over social rejection and loss of femininity.(Alper, 1973; Hoffman, 1974; Horner, 1974). Fears of affiliative losses were reported with greater frequency by undergraduates who were majoring in the humanities rather than the physical sciences (Horner, 1974). Further, students with a traditional role orientation were likely to perceive success in terms of gratification of a need for acceptance, rather than a need for achievement (Alper, 1973).

It may be inferred from these investigations that need achievement in female graduate students in nontraditional programs would be similar to that of high-achieving men, i.e., relatively unaffected by competing motives. On the other hand, among female students in traditional fields, the need for approval may be in conflict with the need for achievement. In this instance,

fear of success responses may represent a resolution of the conflict between the achievement need and the ultimately stronger affiliative need, which could not be gratified in competitive, achievement-oriented situations. As a result, female graduate students in traditional programs should be higher in need affiliation and lower in need achievement than female students in nontraditional programs.

The purpose of the study was to determine if females enrolled in traditional graduate programs could be distinguished from females enrolled in nontraditional graduate programs on the basis of parental reinforcement, parental modeling, need achievement, and need affiliation.

QUESTIONS

1. Would students in nontraditional graduate programs obtain significantly higher scores on a measure of paternal reinforcement for achievement than students in traditional graduate programs?
2. Would students in traditional graduate programs obtain significantly higher scores on a measure of maternal reinforcement for achievement than students in nontraditional graduate programs?
3. Would the educational level attained by fathers of students in nontraditional graduate programs be significantly higher than the educational level attained by fathers of students in traditional graduate programs?
4. Would the frequency of employment in professional or managerial positions be significantly higher for fathers of students in nontraditional graduate programs than for fathers of students in traditional graduate programs?
5. Would the educational level attained by mothers of students in nontraditional graduate programs differ significantly from the educational level attained by mothers of students in traditional graduate programs?
6. Would the patterns of employment for mothers of students in nontraditional graduate programs differ significantly from the patterns of employment for mothers of students in traditional programs?

7. Would students in nontraditional graduate programs obtain significantly higher scores on the achievement scale of the Personality Research Form than students in traditional graduate programs?

8. Would students in traditional graduate programs obtain significantly higher scores on the affiliation scale of the Personality Research Form than students in nontraditional programs?

METHOD

SUBJECTS

Subjects selected for the study were 143 female graduate students at a private, urban university. The students were chosen randomly from traditional and nontraditional fields of study. Those in the former category were selected from the schools of education and social work; those in the latter category, from the programs of law, business, and biology. The students were enrolled in graduate programs which required 1½ to 3 years of full-time study beyond the undergraduate level, to ensure a relative homogeneity in terms of the time required to complete the graduate course work. Subjects employed in the study were under the age of 35; a relatively narrow age range would tend to minimize the possible effect of generational differences. Data collected from 27 students were not utilized because these subjects reported that they were more than 35 years old. To ensure the relevance of responses on parental measures, only those subjects whose parents were living at home throughout their high school years were included in the sample. An additional 27 subjects did not meet this requirement. As a result, data obtained from 46 students in traditional fields and 43 students in nontraditional fields were utilized in the study.

MATERIALS

In view of the fact that an instrument to assess parental reinforcement for academic achievement and career goals was not available, a scale was constructed to measure these variables. The Likert-type scale consisted of

fifteen statements which were designed to assess paternal behavior and fifteen, to assess maternal behavior. Responses were scored along a 7-point continuum, which ranged from "disagree very strongly" to "agree very strongly." Evidence of content validity and reliability was obtained. Test-retest administrations to 18 graduate education students at two-week intervals yielded a reliability coefficient of .93 for the paternal scale, .93 for the maternal scale, and .93 for the two scales combined. The scales were administered to 18 law students and 18 graduate education students and an item analysis, performed. Item-total correlations ranged from .39 to .87. A Demographic Data Form was also devised to ascertain students' academic program, parents' occupation and education, as well as other background information. Because responses to projective indices of achievement and affiliation have varied as a result of stimulus characteristics (Alper, 1973; Alper & Greenberger, 1967; French & Lesser, 1964; Robbins & Robbins, 1973), the achievement and affiliation scales of Jackson's Personality Research Form, a self-report measure, were selected.

PROCEDURES

Items on the achievement and affiliation scales of the Personality Research Form were ordered randomly and were administered to the sample of graduate students along with the Parental Reinforcement Scales and the Demographic Data Form. The criterion was graduate program membership, determined by students' enrollment in traditional or nontraditional areas of graduate study. There were nine predictor variables. Paternal and maternal reinforcement for achievement and career goals were determined by scores on the Parental Reinforcement Scales. The five predictors concerned with parental modeling behavior were determined by the father's education and the mother's education and employment patterns. Achievement and affiliation were determined by PRF scores.

Since the purpose of the study was to determine if these two groups differed in terms of the constellation of variables, a discriminant analysis was

employed. As a test of overall significance of the discriminant function, the Wilks' lambda was computed. Separate analyses of variance for each of the nine variables were also computed. A chi-square analysis was used to determine if the two groups differed in terms of the frequency with which the fathers were employed in professional or managerial positions.

RESULTS AND DISCUSSION

STATISTICAL FINDINGS

Centroids were computed to indicate the mean discriminant scores of the traditional and nontraditional groups. The centroids were 4.2388 and 5.2086, respectively. To determine if the separation of the groups was significant, the Wilks' lambda was computed. Results of this analysis are reported in Table 1.

TABLE 1

WILKS' LAMBDA TEST OF EQUALITY OF CENTROIDS

Λ	df	F
.772	9 79	2.597*

* $p < .01$

Results indicated that there was a significant separation between the two groups, F (9, 79) = 2.597, $p < .01$.

Correlation coefficients were computed to assess the relative contribution of each variable to the discriminant function. These data are reported in Table 2.

TABLE 2

CORRELATION OF DISCRIMINANT FUNCTION AND NINE VARIABLES

Variable	Correlation
Parental Reinforcement	
Paternal Scale	.77
Maternal Scale	.51
Parental Modeling	
Father's Education	.55
Mother's Education	.18
Hours of Employment	-.24
Period of Employment	.17
Type of Employment	.05
Achievement	.37
Affiliation	.02

The variable which correlated most highly with the function was the paternal scale. Substantial correlations were also made by two other variables, i.e., father's education and the maternal scale. Moderate correlations were found for achievement and, to a lesser extent, for hours of employment. Correlations of affiliation as well as type of employment were low.

Means, standard deviations, and F ratios were computed to test the significance of the difference between groups on each variable. This analysis is presented in Table 3.

TABLE 3

MEANS, STANDARD DEVIATIONS, AND F RATIOS OF TRADITIONAL AND NONTRADITIONAL STUDENTS ON PARENTAL REINFORCEMENT, PARENTAL MODELING, ACHIEVEMENT, AND AFFILIATION

	Traditional		Nontraditional		
Variable	Mean	SD	Mean	SD	F
Parental Reinforcement					
Paternal Scale	70.33	15.23	80.95	10.89	13.844***
Maternal Scale	71.15	14.75	77.98	11.99	5.559*
Parental Modeling					
Father's Education	1.56	0.80	2.02	0.87	6.513**
Mother's Education	1.30	0.65	1.42	0.65	0.660
Hours of Employ.	2.11	0.89	1.91	0.83	1.191
Period of Employ.	2.04	1.00	2.23	1.29	0.588
Type of Employ.	1.78	0.66	1.81	0.75	0.043
Achievement	14.00	3.02	15.02	2.67	2.786
Affiliation	14.98	3.46	15.05	3.35	0.009

* $p < .05$
** $p < .01$
*** $p < .001$

Separate analyses of variance indicated that there was a significant difference between groups on three of the nine variables. The nontraditional group scored significantly higher than the traditional group on the paternal scale, F (1, 87) = 13.844, $p < .001$, and on the maternal scale, F (1, 87) = 5.559, $p < .05$. Father's education was also significantly higher for the nontraditional, as compared with the traditional group, F (1, 87) = 6.513, $p < .01$.

A chi-square analysis was employed to determine if the two groups of graduate students differed in terms of the father's occupational level. Results are presented in Table 4.

TABLE 4

OBSERVED FREQUENCIES AND CHI-SQUARE ANALYSIS OF THE FATHER'S OCCUPATIONAL LEVEL FOR TRADITIONAL AND NONTRADITIONAL STUDENTS

	Nontra-ditional	Tradi-tional	Total	X^2
Professional/Managerial	28	15	43	9.44*
Nonprofessional/Nonmanagerial	15	31	46	
Total	43	46	89	

* $p < .01$

Results of a chi-square analysis indicated that there was a significant difference between the groups in terms of paternal occupation, X^2 (1) = 9.44, $p < .01$. The fathers of the nontraditional group held professional or managerial positions with significantly greater frequency than the fathers of the traditional group.

ANALYSIS OF THE DIFFERENCES BETWEEN TRADITIONAL AND NONTRADITIONAL STUDENTS

Parental Reinforcement Contributes Highly to Group Separation

Scores on the paternal scale of the nontraditional group were significantly higher than scores of the traditional group. This variable made the largest contribution to group separation. The question with regard to paternal reinforcement was answered in the affirmative, for nontraditional students received greater paternal reinforcement for academic and career goals than traditional students, and therefore patterned their academic programs after masculine career interests. These results were in consonance with the rationale developed by Bandura and his associates (Bandura, 1969; Bandura, Ross, & Ross, 1971; Bandura & Walters, 1963), who found that individuals were likely to imitate a rewarding model.

The maternal scale made a substantial contribution to group separation, and the difference between groups was significant. However, the question with regard

to maternal reinforcement was answered in the negative, for the nontraditional group obtained higher scores than the traditional group. Findings suggested that maternal reinforcement was related to students' enrollment in nontraditional rather than traditional areas of study.

When considering the combined effect of parental reinforcement, findings indicated that the nontraditional group received greater support for academic and career goals from both parents, although support was greater on the part of the father. For the nontraditional students, additional reinforcement from the mother may have strengthened the rewarding power of the father, who appeared to be the primary reinforcing agent. On the other hand, the traditional students received considerably less reinforcement for achievement from the mother as well as the father. Although research has indicated (Bandura, 1971; Rosekrans, 1967) that the behavior of a similar model was likely to be imitated, in the present study, reinforcement from a similar model did not appear to be related to the selection of traditional academic programs.

Paternal Modeling Contributes Highly to Group Separation

Examination of the father's education and occupation provided additional information with regard to the influence of parental variables on choice of academic program. The father's educational level made a substantial contribution to group separation, and was second in importance in distinguishing between the two student groups. Findings answered the question with regard to paternal education in the affirmative, for fathers of the nontraditional group were more likely to have a bachelor's degree and a graduate degree than were fathers of the traditional group. These results corroborated the findings of Bandura, Ross, and Ross (1971) with regard to identification with models who possessed intellectual status. The difference between groups in terms of the father's education was reflected in occupational level, as well. For fathers of the nontraditional students were more likely to hold professional or managerial positions than fathers of the traditional students.

Maternal Modeling Does Not Contribute to Group Separation

Although the two groups differed in terms of the occupational and educational level of the father, the effect of the mother's occupation and education was considerably less important in distinguishing between students in traditional and nontraditional fields. Results answered the questions with regard to maternal education and employment in the negative, for the students did not differ along these dimensions. With regard to maternal employment patterns, there was no significant difference between groups in terms of type of employment, i.e., professional or nonprofessional; hours of employment, i.e., part time or full time; or period of employment, i.e., during the daughter's elementary school, high school, or college years. Although none of the maternal education or employment variables correlated substantially with the discriminant function, there was a relatively small negative correlation with regard to hours of employment. Accordingly, mothers of the nontraditional group who were employed were somewhat less likely than mothers of the traditional group to work on a full-time basis.

Paternal Modeling Reflects Parental Achievement Values

Examination of career modeling patterns indicated that 42% of the nontraditional students had academic interests in fields that were similar to those of the father. Results further indicated that 9% of the nontraditional group had mothers, as well as fathers, in similar fields. The mothers of the other nontraditional students whose career interests were similar to those of the father had been housewives prior to their daughter's graduation from high school. On the other hand, none of the fathers of the education or social work students were in similar fields, and only one of the mothers of students enrolled in traditional programs was employed in a similar field, i.e., social work.

Because only one student in the traditional group had academic interests in a field that was similar to that of a parent, career modeling data could not

be analyzed. However, previously cited information suggested that some women in nontraditional fields may have modeled their career interests directly after those of the father, and a few were likely to have patterned their academic program after the careers of the mother, as well. On the other hand, among the traditional group, modeling in terms of the father's occupation was totally absent and, in terms of the mother's occupation, was negligible.

When considering the combined effect of parental reinforcement and modeling, findings indicated that the nontraditional group received greater reinforcement for achievement from the father and, secondarily, from the mother than did the traditional group. Fathers of the nontraditional students were better educated and more likely to be employed in professional or managerial positions than were fathers of the traditional students. Career modeling after the father and, to a lesser extent, after the mother as well, was apparent for many of the students in nontraditional fields. On the other hand, there was virtually no career modeling after the father or the mother for students in traditional fields. Neither the educational level nor the employment patterns of the mother were important in distinguishing the two groups.

Overall, paternal reinforcement for achievement, as well as the father's education and occupation strongly indicated the modeling influence of the father in the program selection of students enrolled in nontraditional programs of study. On the other hand, the impact of parental reinforcement and modeling on students enrolled in traditional areas of study was considerably less important. It may be possible that the difference between groups in terms of parental modeling behavior would be related to the distinction in socioeconomic level.

If women in nontraditional fields were likely to have highly educated fathers who were often engaged in similar occupations, and to have mothers who were housewives, then the emotional climate and financial status of the home may have influenced their choice of academic program. As a result, this group of women was likely to have received considerable reinforcement, particularly

From the father, for academic and career goals in innovative fields. The fields of law, business, and the physical sciences involve greater risks and may not provide the job security that has often been ascribed to the programs of education and social work.

The women who have entered these traditional fields appear to have received more limited parental reinforcement for achievement, and to have fathers who have not attained a high educational and occupational level. Parental modeling was less important in the program choice of students in traditional fields. Consequently, the academic and career goals of the traditional group may have been influenced by other factors. It may be possible that a desire for job security, e.g., tenure, pension, would have affected the selection of academic program and, in turn, career choice of students in traditional fields.

Need Achievement Contributes Moderately to Group Separation

On the achievement scale, the scores of the nontraditional students were higher than those of the traditional students. The question with regard to need achievement was answered in the negative, for the difference between traditional and nontraditional students was not significant. However, there was a moderate correlation of the achievement scale and the discriminant function. Comparison of findings with normative data reported in the PRF manual indicated that the achievement motivation of both groups of graduate students, relative to the general population, was high. Therefore, the groups may not have been sufficiently heterogeneous in terms of achievement for differences to be significant.

Need Affiliation Does Not Contribute to Group Separation

On the affiliation scale, the scores of the traditional and nontraditional students were nearly comparable. There was a negligible correlation of the discriminant function and the affiliation scale, which made the smallest contribution to group separation. These findings answered the question with regard to need affiliation in the negative, for the affiliative motive was not higher

among traditional rather than nontraditional students. Previous investigations indicated that fear of success responses in women with a traditional orientation focused, primarily, on affiliative concerns (Alper, 1973; Hoffman, 1974; Horner, 1974). Yet, the presentation of a self-report measure of affiliation apparently did not elicit the conflict of motives implicit in responses to projective techniques. In the present study, it would appear that no conflict of motives was aroused and that affiliative responses reflected only the stable motivational structure. Consequently, the responses of both groups of graduate students on a self-report measure of affiliation were nearly comparable.

Summary of Differences Between Traditional and Nontraditional Students

Overall, the choice of nontraditional graduate program appeared to be related to parental values for achievement. These values seemed to be reflected in the educational and occupational level of the father, as well as parental reinforcement for academic and career goals, particularly on the part of the father. In view of these findings, it may be more meaningful to assess educational and career goals, primarily, in terms of parental values rather than in terms of a motive to avoid success.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

There was a significant separation between the traditional and nontraditional students on the basis of a combination of nine variables. The nontraditional students received significantly greater support for academic and career goals from the mother and, particularly, from the father than did the traditional students. The Paternal Reinforcement Scale was the most important variable in distinguishing the groups, whereas the Maternal Reinforcement Scale was third in order of importance.

Modeling on the part of the father rather than the mother was important in distinguishing between the students. Nontraditional students differed signifi-

cantly from traditional students in terms of paternal education. Fathers of the former group attained a higher educational level, i.e., a bachelor's degree or a graduate degree, than did fathers of the latter group. The father's education was second in importance to group separation. Students differed significantly in terms of the father's occupational level. Fathers of the nontraditional group were more likely to hold professional or managerial positions than were fathers of the traditional group. On the other hand, there was no significant difference between the groups in terms of the mother's education, which had a negligible impact on group separation, or in terms of maternal employment. Neither period of employment nor type of employment were important to group separation. However, the mothers of traditional students who were employed were somewhat more likely to work on a full-time basis than were mothers of nontraditional students.

The nontraditional students were higher on achievement than the traditional students. Although the difference was not significant, achievement made a moderate contribution to group separation. There was no significant difference between students on affiliation, which made the smallest contribution to group separation.

RECOMMENDATIONS

The sample that was selected for the present study was comprised of female graduate students who were enrolled in two traditional and three nontraditional fields. Further investigations may be made to assess the impact of the variables on graduate students who are enrolled in different programs of study. Consequently, it may be possible to generalize the findings to a broader range of traditional and nontraditional fields.

Because of the importance of the parental variables in separating the groups, it may be meaningful to examine achievement training patterns in terms of

early demands for mastery and independence. Additionally, subsequent investigations of the family constellation in terms of ordinal position, number and sex of siblings, may contribute to a greater understanding of the important determinants of academic and occupational choice among women.

Because the paternal variables made substantial contributions to group separation, it may be fruitful to conduct further research in this area. A more precise analysis of the occupational patterns of the father may clarify further the paternal role in the career choice of women.

Because the two groups of graduate students appeared to differ in terms of socioeconomic level, an investigation of risk-taking behavior and security needs may be meaningful. It is possible that the nontraditional group would obtain higher scores than the traditional group on a risk-taking measure. Further, it is possible that the traditional group may obtain higher scores than the nontraditional group on a measure of security needs.

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